

**Enabling opportunities from the overflow of smart-grid data**  
***A path to manage uncertainties and variability, reduce risks of grid  
operation and tap into hidden business value***

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**Abstract**

The growing production of renewable energies, electric vehicles combined with a more active role of customers is completely changing the way the electrical grid is used and has to be operated. Demand side management combined with high stochastic sources of energy requires a reliable information grid on the top of the electrical grid, i.e. the “smart grid”.

Smart grids covers a very wide set of activities and technologies that should give all actors the necessary intelligence to take the best economical decisions. Smart meters as well as Phasor Measurement Units (PMUs) are, together with traditional measurements, generating massive amounts of market and situation data.

Now the question is how to extract valuable information from all this data? The infrastructure to take decision on the grid is there, the information is there but how do you transform all this information to support the decision making process of the grid players?

Here examples will be shown, where historical data can support decision-making for short term operation planning and tap into hidden business value. Various opportunities will be discussed regarding market value optimization of photovoltaic energy, reducing maintenance costs of windmills, increase energy efficiency of large industrial load and improve predictability of the dynamic grid security.